MultiVOIP™ FX

FXS-Only SIP Gateways

MVPFXS-8
MVPFXS-16
MVPFXS-24

Cabling Guide

Cabling Guide
MultiVOIP FX SIP FXS-Only Gateways
Models MVPFXS-8, MVPFXS-16, MVPFXS-24
82100110L Rev. A

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Revision	Date	Description
A	07/17/06	Initial release.

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Patents
This Product is covered by one or more of the following U.S. Patent Numbers: 6151333, 5757801, 5682386, 5.301.274; 5.309.562; 5.355.365; 5.355.653; 5.452.289; 5.453.986. Other Patents Pending.

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Introduction

This guide shows you how to set up your MultiVOIP. See the MultiVOIP *User Guide* included on the MultiVOIP CD for more information.

Safety Warnings

Lithium Battery Caution

A lithium battery on the voice/fax channel board provides backup power for the timekeeping capability. The battery has an estimated life expectancy of ten years.

When the battery starts to weaken, the date and time may be incorrect. If the battery fails, the board must be sent back to Multi-Tech Systems for battery replacement.

Warning: There is danger of explosion if the battery is incorrectly replaced.

Ethernet Ports Caution

Caution: The Ethernet ports and command ports are not designed to be connected to a Public Telecommunictaion network.

Safety Warnings Telecom

- Use this product only with UL- and CUL-listed computers (US).
- Never install phone wiring during a lightning storm.
- Never install a phone jack in a wet location unless the jack is specifically designed for wet locations.
- Never touch uninsulated phone wires or terminals unless the phone line has been disconnected at the network interface.
- Use caution when installing or modifying phone lines.
- Avoid using a phone during an electrical storm; there is a risk of electrical shock from lightning.
- Do not use a phone in the vicinity of a gas leak.
- To reduce the risk of fire, use only 26 AWG or larger telephone line cord.
- This product must be disconnected from power source and telephone network interface when servicing.

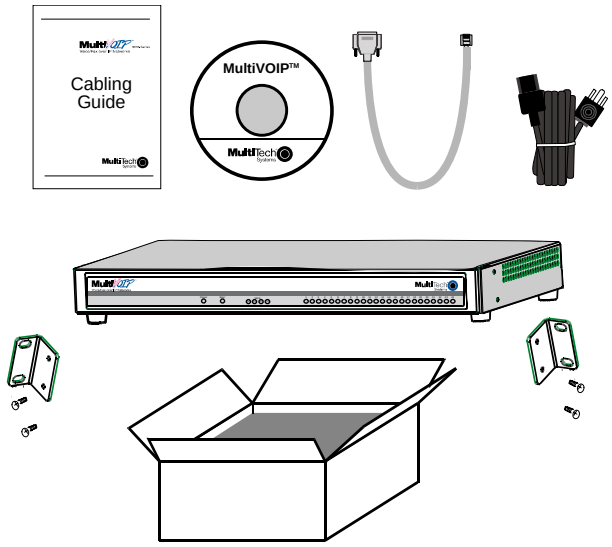
Safety Recommendations for Rack Instructions

- Ensure proper installation of the MultiVOIP in a closed or multi-unit enclosure by following the recommended installation as defined by the enclosure manufacturer. Do not place the MultiVOIP directly on top of other equipment or place other equipment directly on top of the MultiVOIP.
- If installing the MultiVOIP in a closed or multi-unit enclosure, ensure adequate airflow within the rack so that the maximum recommended ambient temperature is not exceeded.

- Ensure that the MultiVOIP is properly connected to earth ground via a grounded power cord. If a power strip is used, ensure that the power strip provides adequate grounding of the attached apparatus.
- Ensure that the mains supply circuit is capable of handling the load of the MultiVOIP. Refer to the power label on the equipment for load requirements.
- Maximum ambient temperature for the MultiVOIP is 60 degrees Celsius (140° F) at 20-90%s non-condensing relative humidity.
- This equipment should only be installed by properly qualified service personnel.
- Only connect like circuits. In other words, connect SELV (Secondary Extra Low Voltage) circuits to SELV circuits and TN (Telecommunications Network) circuits to TN circuits.
- To reduce the risk of shock, all access doors should be closed during normal operation of the equipment.

MultiVOIP Package Contents

- One MultiVOIP MVPFXS unit
- One power cord
- One Console Cable (RJ45 to DB9 connectors)
- Two rack mount brackets and four mounting screws
- One printed *Cabling Guide*
- One MultiVOIP CD containing software and user documentation.



Cabling the MVPFXS-8/16/24

Prerequisites: To complete the MultiVOIP cabling procedure, you must have:

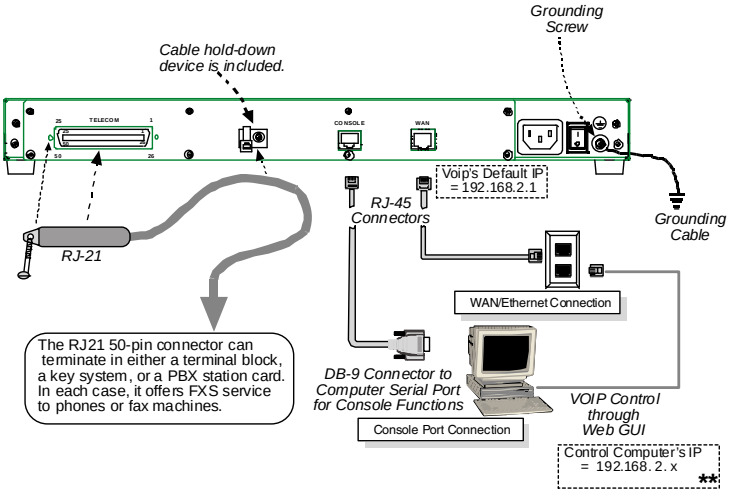
- One RJ-21 Cable. That cable must have a male end to fit the MultiVOIP. The other end must fit your telephony equipment.
- Two common network cables (RJ45-to-RJ45).

Cabling entails connecting:

- the MultiVOIP to ground ,
- the MultiVOIP to power,
- the MultiVOIP to your LAN/WAN network,
- the control computer to your LAN/WAN network,
- the MultiVOIP to your telephone equipment, and
- connecting, optionally, the MultiVOIP Console port to the control computer's serial port (needed for initial setup only if your system cannot use the voip's default IP address).

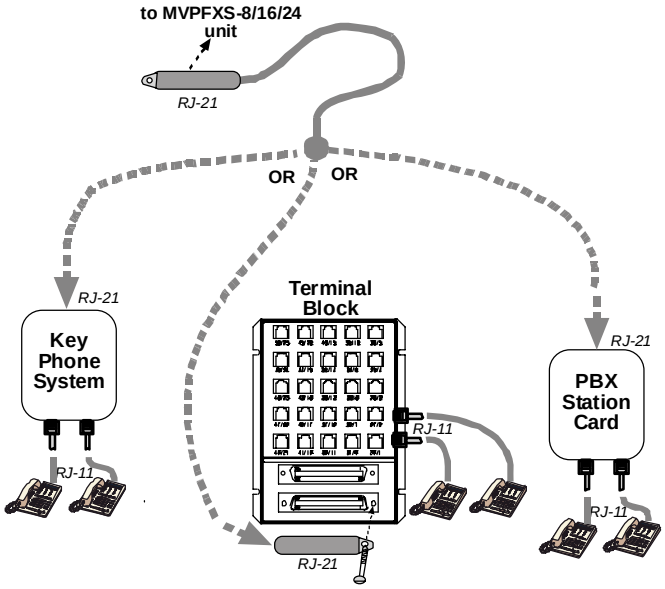
1. **Ground Connection**. Be sure that the unit is properly connected to an earth ground.

   To do this, connect a grounding wire between the chassis grounding screw (see the figure below) and a metallic object that will provide an electrical ground. In some cases, mounting racks will can serve as an adequate earth ground.



** **Note:** If network configuration makes it difficult or impossible to assign the control computer to 192.168.2.x, then the voip's IP must be reset using the voip's Console connection. See *User Guide* for details.

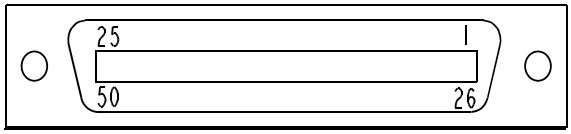
2. **Power Connection**. Connect the power cord supplied with your MultiVOIP to a live AC outlet and to the power connector on the back of the MultiVOIP.
3. **VOIP-to-Network Connection**. Connect a network cable (RJ45-to-RJ45) to the **WAN** connector on the back of the MultiVOIP. Connect the other end of the cable to your network. The MultiVOIP's default IP address is 192.168.2.1.
4. **Computer-to-Network Connection**. Connect a network cable (RJ45-to-RJ45) between your LAN/WAN network and the control computer that you will use to configure/control the MultiVOIP. The control computer's IP address must be set so that the first three octets of the IP address match those of the MultiVOIP (192.168.2.x).
5. **Telephony Connection**. Connect a 50-conductor cable (RJ21-to-RJ21) between the MultiVOIP's TELECOM receptacle and your telephone equipment. The MultiVOIP requires a male RJ-21 connector. Secure the RJ-21 connector to the TELECOM receptacle with a screw (which is typically built into the connector) and use the hold-down device to secure the cable to the back panel of the MultiVOIP unit. The gender of the RJ-21 connector on the other end of the cable must fit your telephony equipment. The figure below shows some typical ways in which the other end of the RJ-21 cable might be connected.



The RJ-21 cable might also terminate mechanically in a punch-down block.

Pin-Out Information for 50-pin Connector

TIP = PIN 1-24
RING = PIN 26-49
CHANNEL 1 = PINS 1 AND 26
CHANNEL 24 = PINS 24 AND 49
PINS 25 AND 50 ARE NO CONNECTS.



6. **Console Connection** (*optional – not usually needed for initial setup*). The Console Cable is needed at initial setup only if your system cannot use the voip's default IP address. In that case, the Console Cable is used to change the MultiVOIP's IP address. Also, if, at a later date, you need to update the MultiVOIP's firmware, you will need to connect the Console Cable because it is required for that process, as well.

   If needed, connect the Console Cable (RJ45 male to DB9 female) between the MultiVOIP and the control PC. Plug the RJ-45 end of the cable into the CONSOLE port of the MultiVOIP and the DB-9 end into a serial port on the PC.

7. **Power-Up**. Turn on power to the MultiVOIP by placing the ON/OFF switch on the back panel to the ON position. Wait for the **Boot** LED on the MultiVOIP to go off before proceeding. This may take a few minutes.

   Proceed to the chapter "MultiVOIP and Auxiliary Software" in the User Guide. That chapter describes how the built-in MultiVOIP software (firmware) is accessed using a web browser and a Java program that are both up-to-date.

   Best Case. If the Java and browser requirements have already been met, and if you were able to assign the control computer to 192.168.2.x, then you can make contact with the MultiVOIP immediately by surfing to 192.168.2.1 on the control computer.

VOIP Configuration

When the cabling connections above have been made and the command PC has been equipped with an up-to-date web browser and Java version, then you are ready to contact the MultiVOIP through a browser and begin configuration. For detailed instructions about configuration, see the *User Guide* on your MultiVOIP CD. The "Quick Start Guide" chapter of the *User Guide* is the best place to start.

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